# The Real World Benefits and Challenges of Interactive Kiosks

Takeaway

Major enterprises and large employers in the retail, health, hospitality and travel industries are deploying interactive kiosks in rapidly increasing numbers. By giving their customers and employees access to self-service applications, these institutions find that interactive kiosks can lower their overhead while improving customer and employee satisfaction. In the past, networks of largely autonomous interactive kiosks were expensive and difficult to manage and maintain. However, a new class of kiosk software and remote management tools aims to alleviate these problems, turning the devices into efficient cost savers and even profit centers.

Introduction: What is an Interactive Kiosk?

An interactive kiosk is a computer-like device that provides people with self-service access to products and services. Kiosks are typically placed in retail stores, airports, hospitals, school campuses, company cafeterias, and other places where personal computers are not available. Like a home or office PC, a kiosk may provide Internet access for web surfing and email, tools for viewing multimedia files, and access to various software applications. Unlike a regular PC, a kiosk typically performs only a few specific tasks, is designed to be used by many different people, and is often optimized for remote control and management. Popular examples of interactive kiosk applications include:
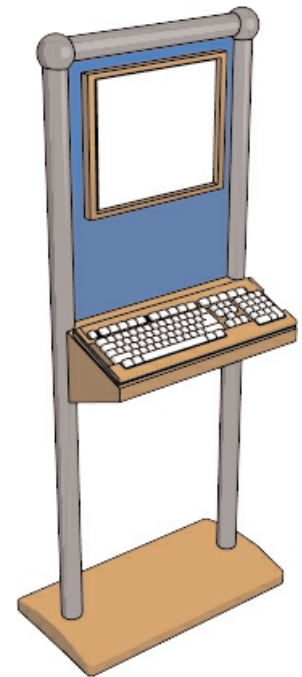
Automated airline check-in systems: Major airlines like Delta, American and Continental have installed ticketing kiosks in dozens of airports to reduce the wait time for passengers who are traveling without checked luggage.

Interactive catalogs: Brick-and-mortar retailers like Staples and Sears have seen dramatic successes with interactive catalogs. In fact, both of these companies found that customers using in-store kiosks spent about twice as much as typical store-only shoppers.

Recruiting kiosks: Retailers such as The Home Depot and Blockbuster use in-store kiosks to recruit new talent as well as to provide remote training for existing staff.

Benefit information kiosks: Microsoft, Pfizer, and other large enterprises use kiosks to give employees access to crucial human resources and benefits information.

The advantages that kiosks bring are significant, and increasing numbers of companies are utilizing them to deploy self service applications. In fact, according to Forrester Research, 80% of brick-and-mortar retailers with an online presence plan to install interactive terminals in their stores.

The recent surge in the popularity of interactive kiosks can be attributed to several factors. First, new technologies like web-based applications reduce project costs and reduce the need for custom software development projects. Next, the widespread availability of Internet access provides kiosk owners with an affordable way to connect all of their terminals together, regardless of geographic

location. Most significantly, though, kiosks represent a way to simultaneously lower overhead and improve customer and employee satisfaction. For example, sportswear retailer REI found that its network of 115 kiosks produced as many sales as a 25,000 sq. ft. store, for a fraction of the cost and with virtually no monthly overhead. And since over 65% of consumers have made Internet purchases before, most find that in-store kiosks are a familiar and convenient way to augment their in-store shopping experiences.

To date, many kiosk projects have suffered from a common set of shortcomings. High on-site support costs, expensive computer hardware and infrastructure, and a lack of clearly defined goals have hindered many past deployments. Fortunately, the real world challenges of deploying a successful kiosk project can be overcome by using the right technology and tools. As experience grows in using and managing kiosks, customers are finding that the business benefits of kiosks require decisions that ensure high reliability, low maintenance expenses, detailed records of usage, and high flexibility for making updates and changes.

## Key Benefits and Considerations for Kiosk Projects

Although the Internet has reduced deployment costs for interactive kiosk networks, modern kiosk projects still face a number of potential technology pitfalls, including:

- Reliability, and the need for kiosks to run for long periods of time without crashing or being rebooted
- Updating content on kiosks deployed at a large number of locations
- Gathering data about how the kiosks are being used
- Fixing problems when no on-site service staff is available

The Anatomy of a Kiosk

Interactive kiosks come in many shapes and sizes, and are often custom-built to withstand the rigors of public use. Thus, a kiosk placed on the warehouse floor might be encased in an industrial-strength steel shell, while a kiosk on a cosmetics counter displaying beauty tips might come in a svelte, fashionable case. In instances where ruggedness and appearance are less important, kiosks may simply be regular PCs.

Most kiosks are built from a few key components, and are then customized for their specific tasks. Inside its cabinet (1), a typical kiosk will probably be configured with a CPU (2), a display device (3), additional peripherals (4) for added functionality, and exterior signage (5). The CPU is often simply a personal computer bought from a major manufacturer (e.g. Dell or IBM), or made with off-the-shelf parts. The display and interface peripherals can be as simple as a regular monitor, keyboard and mouse, or more exotic, like a large-screen plasma display and touchscreen.
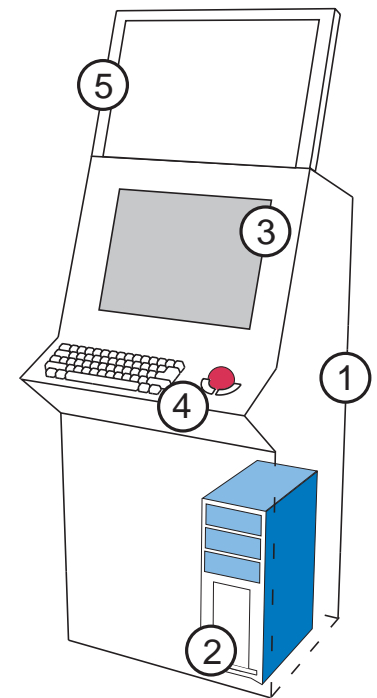
Depending on the functions they will be serving, kiosks may take advantage of specialized peripherals. For example, a library self-checkout kiosk might have a barcode reader for scanning library books and cards, while a movie ticket kiosk might have a credit card reader and printer for making transactions and printing tickets. Special input devices like touchscreens and industrial trackballs are frequently used to make the kiosk as durable and user-friendly as possible. Finally, kiosks often leverage Internet or intranet

connectivity in order to provide web browsing, access to content on company servers, and remote management functionality.

A fully-assembled device with cabinet, CPU, display and peripherals is still little more than a glorified PC. Special software is needed to turn such a system into a true interactive kiosk. This software typically provides tamper-proofing capabilities, user interface customization, and remote management functionality.

Kiosk Software

There are three categories of software that run on interactive kiosks: operating system (OS) software, application software, and management software. In addition, special development tools may be used to create the applications that run on the interactive kiosks.
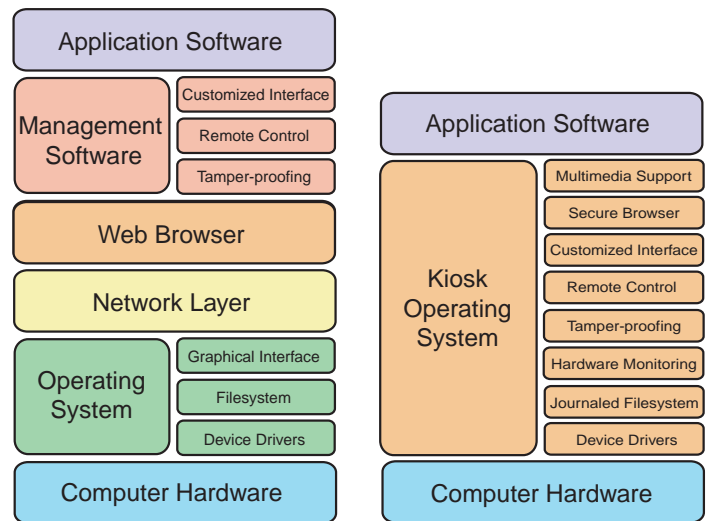
Operating System Software

Like your desktop PC, an interactive kiosk must have an operating system, which is a basic set of tools that allows a computer to identify its hardware and run its applications. In many cases, kiosk owners simply run a desktop OS like Microsoft Windows, and use 3rd party software to cover up any holes and add in kiosk-specific features, such as tamper-proofing and remote control. Recently, though, operating systems designed solely to run interactive kiosks have been built and deployed by several companies. WireSpring's FireCast OS is one such example of a "true" interactive kiosk OS.

Application Software	
Management Software	Customized Interface
	Remote Control
	Tamper-proofing
Web Browser	
Network Layer	
Operating System	Graphical Interface
	Filesystem
	Device Drivers
Computer Hardware	

Application Software	
Kiosk Operating System	Multimedia Support
	Secure Browser
	Customized Interface
	Remote Control
	Tamper-proofing
	Hardware Monitoring
	Journaled Filesystem
	Device Drivers
Computer Hardware	

In the past, kiosk software was layered on top of a general-purpose operating system. Today, new purpose-built kiosk operating systems integrate kiosk functions directly into the core system software.

Application Software

Kiosk software applications come in many varieties, and are often custom-tailored for each kiosk project. In some cases, a kiosk owner may simply modify an existing application to make it acceptable for public use. But while a kiosk used for public web surfing might simply run a regular web browser customized with special buttons and images, more sophisticated kiosk applications are typically written from scratch, and are purpose-built to handle the unique challenges of public environments. For example, many music retailers allow customers to "browse" their inventory via special kiosks that play music clips from a catalog of CDs. The software that plays the music, brings up an image of the album cover, and provides information about the musician is a custom kiosk application. All of the other functions typically found in a personal computer are hidden, as are any unnecessary buttons and windows. Another popular application is the movie ticketing kiosk mentioned earlier. Instead of waiting in line at the theater, a customer can simply go to a kiosk, insert his credit card, select the name of the movie and showtime from a list, and have tickets printed instantly.

Kiosk Management Software

Increasingly, kiosk project managers are taking advantage of remote management to lower their maintenance costs and keep content fresh and up-to-date. The kiosks use special software to connect to an off-site server, typically via the Internet, which provides remote control of the entire

kiosk network from any location. Kiosk management software is essential for managing the deployed network efficiently and keeping the total cost of ownership in check, and is responsible for three types of tasks: security tasks, application tasks and management tasks.

Security Tasks

In many cases, kiosks are placed in environments where vandals might try to electronically attack and deface them. An attack as simple as pressing Control-Alt-Delete can disable a kiosk that does not have suitable defenses. More sophisticated attacks, from attempting to "crack" software to intercepting passwords and network traffic, can not only take a kiosk down, but can expose sensitive corporate data to unscrupulous users.

Application Tasks

Kiosk software packages are also used to customize the look-and-feel of the self-service applications themselves. Most kiosk packages allow administrators to customize the user interface (using attractive branding, graphics, buttons, and icons), add additional help messages and warnings where the task might become complicated, and even display customized screen savers to attract attention to the kiosk.
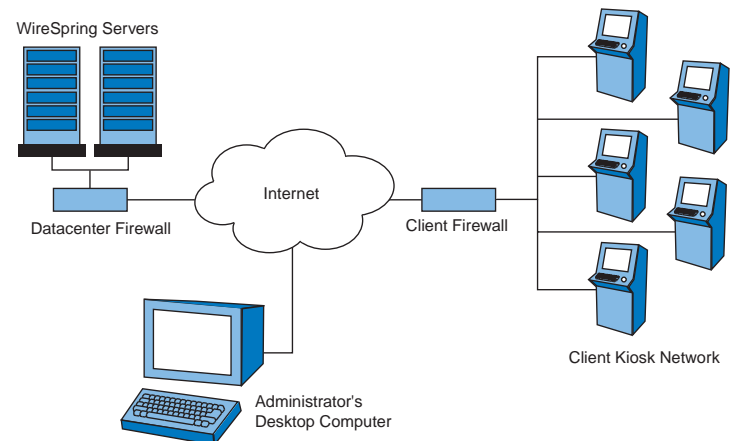
Management Tasks

Because kiosks are typically deployed at multiple locations that lack on-site technical support, remote management has become an essential part of many kiosk deployments. Without it, a crashed kiosk displaying the "Blue Screen of Death" will remain unusable until a technician or trained employee arrives to reset the machine. A remote management package should enable administrators to troubleshoot their kiosks remotely, dramatically reducing annoying crashes and costly on-site service visits. With the ability to change settings and update software remotely, kiosk owners can apply the latest content, security patches and antivirus software to their kiosks without ever making a service call.

WireSpring Servers

Datacenter Firewall

Internet

Client Firewall

Administrator's Desktop Computer

Client Kiosk Network

When is WireSpring's FireCast the answer?

First and foremost, kiosk software such as WireSpring's FireCast suite is used to provide a secure interface for public-facing kiosks. As a first line of defense, software like FireCast OS will "lock down" the computer, making it inaccessible to intruders. Standard approaches used to disable a Windows-based PC, such as pressing Control-Alt-Delete, do not affect a FireCast-powered kiosk.

WireSpring's ClientCenter, an advanced management package, also allows the kiosk owner to create customized screen savers with full motion video and animation. These screen savers are designed to attract customers to the kiosk when it is not in use. In addition, ClientCenter allows users to create, schedule, and apply attractive and compelling user interfaces, application packages, and other services, all from a central location.

Companies who are either planning a new kiosk project or who are overhauling an existing deployment need to consider several things when choosing a kiosk software package:

What task will the kiosk perform?

Operators looking to utilize a pre-existing Windows-only software package may be limited to a Windows-based kiosk software solution. However, those building an application from scratch, using a Java-based application, or using web applications and web services are free to choose from Windows, Linux, and other operating platforms. In these cases, the power, speed and stability of FireCast's Linux-based architecture are difficult to beat.

Who is the audience?

Kiosks placed in high-traffic venues need to be vandal-resistant, and those running financial queries and transactions need to be especially secure against network intrusion. In these cases, the "hardening" functions provided by the kiosk software must be carefully scrutinized. The world-class security model used in FireCast is ideal for applications where security is of the utmost importance.

How will the kiosks be managed?

While a simple application with only a few kiosks deployed might be manageable by an on-site staff, any larger application will probably require remote management. And while many Windows-based kiosk packages offer provisions for remote content management, none can approach the flexibility and power of FireCast OS coupled with ClientCenter, WireSpring's remote management system. Built from the ground-up for interactive kiosks, every aspect of FireCast OS can be remotely managed, controlled and upgraded.

For More Information

FireCast is a compelling solution for many kiosk applications, combining the power and stability of a Linux operating system with the kiosk management software required to successfully build and maintain networks of interactive devices. If you need help planning your next kiosk project, or if you would like more information about how FireCast can work for you, contact WireSpring at:

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